

**In the claims:**

1. (Currently amended) A spinal disc nucleus replacement comprising:  
an elastomeric sheath surrounding an outside portion of a flexible rod, a portion of said sheath being arranged for sliding along said rod; and  
a sheath compactor adapted to slide a portion of said sheath along said rod from a first position to a second position, wherein the second position is more distal into a patient than the first position, wherein in the first position said sheath is in a non-expanded orientation and in the second position said sheath is in an expanded orientation wherein folds of said sheath expand radially outwards from said outside portion of said rod, wherein said elastomeric sheath surrounds the outside portion of the rod both in the non-expanded and expanded orientations and wherein said folds in the expanded orientation comprise a plurality of crests and troughs, and wherein ends of said rod are fastened together.
2. (original) The spinal disc nucleus replacement according to claim 1, wherein a stopper is at a distal portion of said rod and said sheath compactor is adapted to push a distal portion of said sheath against said stopper.
3. (original) The spinal disc nucleus replacement according to claim 1, wherein a removable fastening ring holds a portion of said sheath to said rod.
4. (original) The spinal disc nucleus replacement according to claim 1, wherein said rod comprises a removable portion.
5. (canceled)
6. (Currently amended) The spinal disc nucleus replacement according to claim-~~5~~1, wherein said rod is flexed into an arcuate shape.
7. (original) The spinal disc nucleus replacement according to claim 1, wherein said rod is constructed of at least one of a shape memory alloy and a shape memory polymer.
8. (canceled)
9. (original) The spinal disc nucleus replacement according to claim 1, wherein said rod is withdrawable and removable from said sheath.
10. (original) The spinal disc nucleus replacement according to claim 1, wherein said folds of said sheath expand outwards generally uniformly.
11. (original) The spinal disc nucleus replacement according to claim 1, wherein said folds of said sheath expand outwards non-uniformly.
12. (original) The spinal disc nucleus replacement according to claim 1, wherein a distance between folds of said sheath varies axially along said rod.

13. (original) The spinal disc nucleus replacement according to claim 1, wherein there are more folds on one side of said sheath than on another side of said sheath.
14. (original) The spinal disc nucleus replacement according to claim 1, further comprising an anchor for attachment to spinal structure.
15. (original) The spinal disc nucleus replacement according to claim 1, further comprising a guiding wire for introducing said sheath thereover.
16. (original) The spinal disc nucleus replacement according to claim 1, wherein said sheath is constructed of at least one of polyurethane, latex, natural rubber, silicone rubber, nylon, and shape memory polymer.
17. (previously presented) The spinal disc nucleus replacement according to claim 15, further comprising another stopper placed at an end of said guiding wire that stops said sheath from progressing further than a length of said guiding wire.
18. (previously presented) The spinal disc nucleus replacement according to claim 1, wherein said troughs of said elastomeric sheath are adjacent said rod.
19. (previously presented) The spinal disc nucleus replacement according to claim 1, wherein said folds of said sheath are spaced generally equally from each other.